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## In this issue BY TASOULLA HADJIYANNI

Lately, I have been intrigued by the question of how happiness relates to the designed environment. Happiness is one of the sacred and unalienable rights noted in the Declaration of Independence. And yet, the United States does not make it in the list of the happiest countries in the world. The Scandinavians typically lead, with Denmark at the top. Danish design is a part of Danes' national identity and daily life. It is not a style or fashion, but the expression and result of a set of aims and values with long-term validity: aesthetics, simplicity, concern for the user, cost and environmental consciousness. Do the Danes' approach to design contribute to their level of happiness, and if so, how? And, what role could EDRA members play in unraveling the ways by which buildings and landscapes influence one's ability to be happy?

Over 2,300 years ago, Aristotle understood happiness as an activity; in fact, as the end of all activities. In Book I of The Nicomachean Ethics, he defined happiness as "a virtuous activity of the soul" and called for all students of politics to also study the soul. For environment-behavior scholarship, this paradigm of happiness broadens the lenses from which to explore pertinent issues: When and how does access to nature become an activity of the soul, one that connects past, present, and future souls? In what ways could the experience of evil be undone through the designed environment? Can places nudge users toward virtuous activities, ones that nourish the soul, and if so, how? And, what forms of collaborations must be nurtured for the creation of soul-making environments?

The authors in Issue #5 push thinking in this direction and reveal the possibilities that exist when environment-behavior scholarship touches on what it means to be human:

- Elizabeth Kocs expands understandings of ecological restoration, positioning the opportunity to experience

### In what ways could the experience of evil be undone through the designed environment? Can places nudge users toward virtuous activities, ones that nourish the soul, and if so, how?

nature in an urban setting as equally important as historical reference.

- Amy Wagenfeld and Daniel Winterbottom shed light on how interdisciplinary collaborations can transform gardens into healing environments for veterans and their families.
- Altaf Engineer furthers questions around how daylighting impacts the museum experience, both for viewing art as well as spatially.
- Paul Russell and Daniel Harding interrogate how design-built studios can transform into effective tools for addressing and solving community issues as well as cultivating critical inquiry in students' minds.

Look forward to continuing dialogues at EDRA46LosAngeles, May 27-30, 2015. Visit [www.edra.org/edra46losangeles](http://www.edra.org/edra46losangeles) for more information on how to register. EDRA Connections also has an open call for articles. We invite you to send 1000-word essays to me at [thadjiya@umn.edu](mailto:thadjiya@umn.edu). You can explore questions around scholarship, pedagogy, practice, or engagement, or review books and other relevant publications. Ground these short pieces in theory and interdisciplinary discourse and use APA referencing. More information on submission requirements can be found at [edra.org](http://edra.org). We look forward to hearing your reflections.



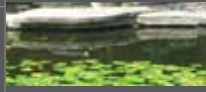
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# Ecological Restoration in Urban Parks: Achieving Historical Fidelity

BY ELIZABETH A. KOCS

2015  
APR

02



Broadly understood, ecological restoration repairs damage caused by human activity in natural areas. This concept has only recently been applied to urban parks. I conducted research on four areas of Lincoln Park in Chicago that were restored in a broader effort in cooperation with the USDA Forest Service, the Chicago Park District, and local stakeholder groups to rehabilitate the park in the 1990s, collecting data during a post-occupancy evaluation for the Forest Service and the City Design Center of the University of Illinois at Chicago<sup>1</sup>. As a scholar interested in how people experience their environments, I wanted to explore how residents experience nature in an urban setting, but during my work I found the concept of ecological restoration strained, not only because urban parks are built environments but also because of the history of Lincoln Park and the restored areas. Here I focus on one of the four areas and discuss its implications for ecological restoration which, when applied in urban settings, has the potential to bring inhabitants of urban areas closer to nature in a way that, according to the philosopher Andrew Light, fosters “stronger and better relationships of stewardship or care between human communities and the nature around them” (Light, 2002, p. 154). For Light, ecological restoration “is as much about restoring the human relationship with nature as it is about restoring natural processes themselves” (p. 155).

Lincoln Park occupies 1,208 acres along a nearly six-mile stretch of the Lake Michigan shoreline of Chicago’s north side. Built almost entirely on landfill that has over time covered

shallow water, shifting sands and marshy swampland, the park offers athletic facilities, field houses, a golf course and driving range, harbors with boating facilities, public beaches, landscaped gardens, a zoo, a plant conservatory and botanical garden, museums, significant sculptures and monuments, and architectural treasures, including the Alfred Caldwell Lily Pool, the focal subject of this essay, which is on the National Registry of Historic Places.

While developing the theoretical basis for my research, I discovered that, although “ecological restoration” entered the lexicon in the 1980s as the practical component of restoration ecology, there was no canonical definition of the term. After reviewing the history of attempts to define it by the Society for Ecological Restoration, I formulated a definition based largely on the work of Eric Higgs, who argued that the two essential principles that must be observed when restoring an ecosystem are ecological integrity and historical fidelity (Higgs, 2003, p. 130). A slightly abbreviated version of my definition runs as follows: *Ecological restoration creates a historically representative natural ecosystem within a defined space that achieves indigenous ecological integrity and repairs elements that have been damaged by human activity.*

Here I focus on the idea of a historically representative restoration, one that achieves historical fidelity. The work involved in restoring the Lily Pool, however, seems to stretch the concept of ecological restoration insofar as, rather than restoring it to a state that existed prior to European settlement (the Chicago area was “discovered” in

I wanted to explore how residents experience nature in an urban setting, but during my work I found the concept of ecological restoration strained...

the late seventeenth century and was settled in the late eighteenth century), the work restored an area that was mostly under water until the mid-nineteenth century. The Lily Pool was built in 1889, designed as a heated outdoor pond filled with exotic plants. Chicago’s cold climate was a constant challenge, though, and in the 1930s Alfred Caldwell—a protégé of Jens Jensen and Frank Lloyd Wright—redesigned it as a regionally sensitive Prairie School landscape, installing native Midwestern prairie and woodland plants and stratified limestone rock formations that represented the headwaters of a Midwestern prairie stream. Thus, the ecosystem that the Forest Service sought to restore had indeed functioned as a “natural” area for decades, but its plantings and material installations were not indigenous to that location; they were designed to simulate a native prairie landscape.

The Lily Pool deteriorated over time and the Lincoln Park Zoo began using it in the 1950s to breed birds for its avian exhibits. Rehabilitation work in the 1960s further disturbed its capacity to represent a prairie headwaters landscape, but when the zoo relinquished it in 1997 historic preservationists, birders, and local civic groups stepped in. The final design sought to restore both natural habitat and Caldwell’s unique design features. The waterfall and step-stone pathway that highlighted Caldwell’s original plans were restored, as were architecturally distinctive pavilions (Figure 1) and a limestone council ring (Figure 2). The area once again provided a secluded garden for public use<sup>2</sup>.



Figure 1: Viewing pavilion at the Lily Pool  
Source: Lincoln Park Conservatory

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The question inevitably arose, however, whether restoring this area to a former state in which it was even then a simulacrum of indigenous nature was truly an ecological restoration that achieved historical fidelity. The Forest Service itself used the term “ecological restoration” in reference to the work, and it was undertaken to restore both its most significant historic design features and the native plantings that Caldwell had installed, plantings that would have been indigenous to the headwaters of a prairie stream created by natural processes. The focus on Caldwell’s design reflects the collaborative approach the Forest Service adopted for these restoration projects, as historic preservationists participated actively in the restoration design process. Classifying this work as ecological restoration therefore applies the concept to projects in which the historical conditions to be restored are defined by local stakeholders, but in so doing it also expresses a commitment to involving humans in decision-making processes that shape the built environment, which

From its inception, some have doubted the viability of ecological restoration in any setting; to them, the work at the Lily Pool might have created a nice park but it would not be a natural area whose original value has been restored. Undertaking ecological restoration in urban settings not only provides local stakeholders with opportunities to define for themselves what counts as history, but also to define what counts as the “original” value of an area.

Among the more formidable critics of ecological restoration are Robert Elliott and Eric Katz. Elliot (1982) famously compared ecological restoration to art forgery, but Light replied that it was more like restoring than counterfeiting a painting (Light, 2000). Katz (1992, 2000, 2012) took the torch of skepticism, arguing that no matter where it is applied ecological restoration creates an artifact rather than something natural. Katz believes that ecological restoration is dangerous because it expresses the human desire to dominate nature and might encourage humans to exploit nature with the reassurance that they can always repair the damage. According to Katz, “the underlying lesson” of ecological restoration “is that human science and technology can control natural forces and processes. The underlying message is the glory of human domination of nature” (Katz, 2012, p. 75).

Given the history of the Lily Pool, Katz would certainly deny that the work done there has created an intrinsically valuable natural area. He would wonder why the concept of ecological restoration would apply at all, since on his definition the area is an artifact that restores an artifact. And that means that in its original state following Caldwell’s redesign it lacked the intrinsic value of a naturally occurring prairie headwaters. Even if Katz conceded that the recent restoration of the area has achieved a high degree of historical fidelity to Caldwell’s design, he would deny that this design ever achieved historical fidelity in its own right, since a stylized representation of such an arrangement could never replicate the value of its natural inspiration. This however implies, as Katz would have it, that the original value of a natural area—historical or otherwise—is intrinsic to nature and has nothing to do with human purposes. The

interest of historical preservationists in restoring Caldwell’s design at the Lily Pool notwithstanding, Katz would argue that natural history exists independently of human history.

Where then does this leave our question about seeing the Lily Pool as an ecological restoration? If we consider Katz’s claim that ecological restorations of wilderness only encourage further exploitation of nature, then ironically perhaps the work of restoring the Lily Pool will prove to have the opposite effect. By extending the concept of ecological restoration to the Lily Pool, we signify that restoring such an area in an urban park may in fact foster precisely the sort of concern with the environment that



Figure 2: Council ring at the Lily Pool  
Source: Lincoln Park Conservatory

the environmental movement needs. Indeed, Katz fails to do justice to the arguments of Andrew Light and William Jordan, both of whom argue that ecological restoration has the potential to engage people with nature in ways that should encourage them to support environmental preservation of wild areas.

Jordan (2000) stresses the potential of ecological restoration for creating reciprocity between humans and nature, which can help the environmental movement build a community of supporters. Acknowledging that most ecological restorations “are carried out on a small scale . . . [representing] wilderness only in miniature, a

Again, though, undertaking ecological restoration in urban settings not only provides local stakeholders with opportunities to define for themselves what counts as history, but also to define what counts as the “original” value of an area.

in this case happens to be built of natural materials. Still, should we stretch the meaning of ecological restoration in this way?

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Landscape designers who extend the concept of ecological restoration to new applications can reconnect city dwellers with nature and foster new relationships between users and the built environment.

symbolic or ceremonial wilderness” (p. 30), “restoration can become . . . a way of creating community . . . [and] expanding the repertory of experiences and techniques available to environmentalists” (p. 32). Thus, far from being antithetical to Katz’s objective of leaving wild areas to the natural processes that shape them over the eons, ecological restoration, even of urban parks, can create among those who enjoy those areas a commitment to supporting wilderness preservation or restoration efforts on a larger scale.

For its part, the Lily Pool provides park users with an opportunity to experience a setting that evokes the sights, sounds, and smells of a natural headwaters ecosystem, and it does so through faithfulness to a historical design that represented such an ecosystem when it was built. True, the result is twice removed from a naturally occurring ecosystem, but if designers and scholars restrict the principles of ecological restoration to wilderness or rural areas, millions of city dwellers might be prevented from experiencing nature. Landscape designers who extend the concept of ecological restoration to new applications can reconnect city dwellers with nature and foster new relationships between users and the built environment. Thanks to the restoration work of the Forest Service and local stakeholders, those who enjoy the Lily Pool today know something about what it’s like to experience nature in a Midwestern prairie headwaters area.

<sup>1</sup> Partial support for the research was provided by USDA Forest Service North Central Research Station Grant Number 03-JV-062.

<sup>2</sup> See Maloney (2001) for a detailed description of the work and a view of the area’s main body of water. The pavilion shown in Figure 1 is visible in the background.

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# Interprofessional Collaboration: Designing Outdoor Environments through Landscape Architecture and Occupational Therapy

BY AMY WAGENFELD AND DANIEL WINTERBOTTOM

2015  
APR

05



It is widely accepted that academic programs must provide and engage in interprofessional education to prepare students to collaborate across disciplines and meet the challenges of a complex and rapidly changing 21st century (Coady, Davison, Matthews, Pharo, & Warr, 2011; Newhouse & Spring, 2010; Interprofessional Education Collaborative Expert Panel, 2011; Stokols, 2011). One of these challenges relates to understanding the global health and well-being benefits associated with equitable access to nature, a growing area of research among design and public health practitioners and academics (Adevi & Lieberg, 2012; Paquet, et al., 2013; Währborg, Petersson & Grahn, 2014). At EDRA45, this was a focus of *Democratic Design Methodology for Improved Healthcare Outcomes through Therapeutic Gardens, Outdoor Placemaking and Community Green Infrastructure*, a session we co-presented with colleagues, Naomi Sachs, MC Haering, and Mike Westley, whose valuable contributions must be acknowledged.

Interprofessional academic training and professional practice can reveal and explore previously undiscovered practical and intellectual connections through education, practice, and research (Moyers, 2007). This model can merge the “experiential evidence and theoretical knowledge” (Ilott, 2004, p. 348) of each discipline and enhance the outcomes of the final project. Occupational therapists are an under-recognized interprofessional partner in the collaborative design of outdoor spaces. Occupational therapists analyze the inextricable relationship between a person, his/her daily activities (occupations), and environmental contexts that can facilitate or impede performance of occupations. They then use that knowledge to help people across the lifespan do what they want and need to do through therapeutic application of everyday activities, including engaging with, and experiencing outdoor spaces. Their knowledge and expertise complements that of landscape architects who

understand how to creatively plan and design traditional outdoor spaces and restore environments disturbed by human or natural forces in ways that allow humans and natural systems to coalesce and thrive.

In this essay, we share an interprofessional experience where the skills of landscape architecture and occupational therapy were integrated in the design of the Fisher House therapeutic garden project. Sixteen landscape architecture students, a landscape architecture professor (LA), and an occupational therapist (OT) (authors) collaborated to design and build a therapeutic garden at the Puget Sound VA Fisher House, on-site residences for families whose veteran is undergoing treatment at Department of Veterans Affairs (VA) facilities.

## THE FISHER HOUSE THERAPEUTIC GARDEN

Many daily stressors affect residents and their families: secondary emotional trauma from their veterans’ medical treatments, persistent primary or secondary effects of post-traumatic stress-disorder, and isolation due to separation from familiar support networks while in an unfamiliar city. Completed in two phases, the goal of the project was to transform the existing sterile suburban landscape into a garden oasis within the institutional hospital environment to support physical, emotional, and spiritual healing for veterans and families.

The design team facilitated three, two-hour participatory design community meetings on-site with residents, staff, advisory committee members, and maintenance personnel. In preparation and to guide conceptual design, students walked the site and researched therapeutic gardens, universal design, and the physical and psychological effects of military service on veterans and their families. Upon completion of the first iteration of



Figure 1: This cantilevered bed has significant usability advantages over a standard ‘box’ raised bed.

their designs, students presented their design concepts, responded to participants’ questions, and facilitated activities like photo preference boards for attendees to tag garden element images with green (favorite) stickers and

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(red) least favorite. The cumulative data and experiential activities directly informed the final design.

## A CROSS-DISCIPLINARY COLLABORATION

The OT joined the team during the second phase of the project and was instrumental in the project's success. The OT challenged students to approach design from an alternative perspective: through the eyes of a user group facing tremendous challenges and the unique effects of their specific illnesses on engagement with their families and the larger community. Below we outline three examples that shed light on the OT's contributions during the design process.

One enters the universally accessible garden via a large patio containing varied height raised planters with herbs and vegetables including a unique student designed cantilevered bed for those using wheelchairs (Figure 1). The OT's role in this segment of the design was to dispel the common belief that all raised beds are equal. Intended to meet the needs of seated gardeners, many actually pose serious risks for physical injury by requiring users to sit sideways, which is in direct opposition to sound ergonomic principles. The LA and OT engaged students in empathy exercises in which they were tasked to plant seedlings in contraindicated seating positions and with simulated physical limitations (e.g. vision occluded, fingers restricted). This exercise helped students understand the lived experience of the intended user group. The direct outcome of this activity led to students developing a solution to enable seated



*Figure 2: Smooth and level, 8' wide pathways facilitate inclusivity in an outdoor space.*

gardeners to engage with gardening at a bed that allows for straight on access to the plants—the cantilevered bed. Residents now grow food for the community kitchen in the collective raised beds and gather together to prepare meals, talk, listen, and connect for support and stability.

A second example comes from the eight-foot wide at-grade crushed gravel path, a contiguous 0.12-mile loop that links garden elements and enables all users to traverse side by side or pass from opposite directions while remaining on the walkway. Providing those walking or wheeling side-by-side equal experiences is an important principle associated with universal design (Figure 2). The OT worked with the team to include this equitable feature in the garden.

A third example comes from a flowing bench wall that flanks a mosaic plaza and leads the eye to a steel-framed viewing gazebo (Figure 3). The bench wall and sides of the gazebo each hold a curved bench with space in the middle to facilitate interactions between those using wheelchairs and those seated. Easy wheelchair access in the gazebo with ample turning radius prevents stigmatization by sitting outside or impeding access to others. The OT worked with students to tape out the proposed bench and gazebo in a large common area in the university building housing the landscape architecture department. Once taped out, students had to problem solve what it would take for garden users to feel that these spaces were inclusionary. Wheelchairs were brought in and students had to sit in and propel them and then propose different permutations. The

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COLLABORATIVE INTERPROFESSIONAL RELATIONSHIPS BETWEEN LANDSCAPE DESIGN PROFESSIONALS AND OCCUPATIONAL THERAPISTS CAN CULMINATE IN THE CREATION OF UNIVERSALLY DESIGNED OUTDOOR ENVIRONMENTS THAT REFLECT AND MEET A DIVERSE RANGE OF CLIENT'S NEEDS AND DESIRES AND SUPPORT HEALTH AND WELL-BEING.

final dimensions of the gazebo were determined in large part through this experience.

## CONCLUSION

In the words of one resident:

As I passed into the healing garden I got a strange, warm feeling... like warm hands surrounding me and I felt calm and protected. When I need peace and calm, when I need to be engulfed by a sense of warmth and love, I know to go to the healing garden and spend some time.

Collaborative interprofessional relationships between landscape design professionals and occupational therapists can culminate in the creation of universally designed outdoor environments that reflect and meet a diverse range of client's needs and desires and support health and well-being. For a more in-depth exploration of the value of collaborative design processes for varied populations see the authors' upcoming book, *Therapeutic Gardens: Design for Healing Spaces*, which will be published by Timber Press in April, 2015.

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*Figure 3: The seating areas welcome standing, seated, and wheeled mobility users to equitably gather and talk, reflect, take shelter, and gaze at the restorative elements of the garden.*

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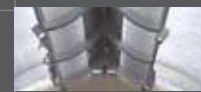
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# The Art of Illumination: Daylighting in Museums and its Implications

2015  
APR

08

BY ALTAF ENGINEER



Paintings and art objects produced before the mid-nineteenth century were created and exhibited in natural light. Lighting designers suggest that art is best viewed in the luminous environment for which it was created. We destroy art, however, in the very process of viewing it since it deteriorates in the smallest amounts of light, including electrical lighting (Fisher, 1984). What usually supersedes all considerations for display, therefore, is the need for art conservation (Tregenza & Wilson, 2011).

Organizations, such as the Illuminating Engineering Society of North America (IESNA), set recommended levels of exposure for materials in art galleries according to their susceptibility (IESNA, 1996). The purpose of lighting, however, is not only to provide illumination, but also to convey information about objects in a desired manner (Cuttle, 2003; Tregenza & Wilson, 2011). IESNA's standards for evaluating daylighting design, in fact, do not take human perception into consideration at all. Time and again, museum curators have cited spatial variety and lighting as two principal elements that determine their favorite museum designs (Moreno, 1989), but we still do not know enough about how daylight can play a significant role in creating a museum environment that is both stimulating and engaging for visitors.

This paper presents a pilot study of seven art museums in Texas designed by renowned architects: the Kimbell Art Museum, Fort Worth, by Louis Kahn; Museum of

Modern Art, Fort Worth, by Tadao Ando; Audrey Jones Beck Building, Museum of Fine Arts, Houston, by Raphael Moneo; the Nasher Sculpture Center, Dallas, Menil Collection, Houston, and Cy Twombly Gallery, Houston, by Renzo Piano, and the Rothko Chapel, Houston, which was first designed by Philip Johnson and subsequently modified and completed by local Houston architects Howard Barnstone and Eugene Aubry.

The inaugurations of these seven museums were announced with great fanfare by museum directors, city officials, and news headlines in the popular press. A literature review of popular media and academic publications on these museums revealed mostly favorable opinions of the daylighting mechanisms used along with claims that the lighting created environments that enhanced the experience of viewing art. For example, the Kimbell Art Museum, after it opened to the public in 1972, was well received by architecture and art critics who felt that the popular curatorial practice of favoring excessive artificial light in art galleries reduced artwork to a commodity and rendered the work 'placeless' (Moreno, 1989). They felt that if art galleries were top-lit carefully through monitors and such, not only could the injurious effects of direct sunlight be avoided, but the design could create a new poetic conscious interaction between people, nature, art and light (Frampton, 1981). These types of claims, however, were not substantiated

through rigorous studies. Instead, they were based only on critics' personal opinions. They also reinforced the fact that daylighting in museums suffers from the lack of post-occupancy evaluation studies.

The purpose of this study is to expand understanding of the role of daylighting in the museum experience by asking two central questions: does daylight have a significant influence on peoples' perceptions and experiences in art museums? If yes, then in what ways? The goal is to discover the potential benefits of introducing daylighting in museums and weigh them against some of the challenges and risks involved in this process.

## METHODOLOGY

A post-occupancy evaluation approach was employed by interviewing 13 museum curators and/or historians who worked in the seven museums noted above. These interviewees were asked:

- What design features of the museum stood out the most?
- Was daylight one of them and why?
- Was daylight an important feature of art galleries and why? And,
- What visitor feedback did they receive over time about daylighting in the museum?

Their responses were used to assess the feasibility of a larger post-occupancy evaluation which could potentially collect feedback directly from museum visitors.

In addition to the interviews, observations were made in these museums for two days each. Documentation consisted of sketching and photography (wherever allowed by the museum) of the daylighting mechanisms, documenting any architectural features that stood out or were unique, and documenting the characteristics of the overall space in entry, circulation spaces, and art galleries in terms of their interior finishes, colors, and overall

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*Figure 1: An art gallery in the Kimbell Art Museum, Fort Worth. Image source: Author*



ambience. Visitor behavior was noted in terms of which spaces they appeared to visit the most and where they preferred to sit, gather, and relax. Visitor counts were made in a few selected art galleries (about four per museum on average) for ten minutes each. The goal was to find out if more people visited daylight art galleries versus non-daylight ones, and gauge the future potential of a larger, more systematic visitor counting exercise in these museums.

## TYPES OF DAYLIGHTING STRATEGIES

Prior to delving deeper into the findings, a description of the varying daylighting mechanisms is warranted. Top lighting mechanisms for introducing daylight in art galleries were employed in all seven museums, but the design of each one was unique. For example, in the Kimbell Art Museum, Louis Kahn created a system wherein daylight was filtered indirectly through a reflecting skylight which bounced over exposed concrete barrel vaults (Figure 1), thereby bringing down light intensity for the viewing environment and almost eliminating the harmful effects of UV radiation at the same time (Moreno, 1989).

In the Museum of Fine Arts Houston, architect Rafael Moneo followed a similar concept; art galleries had roof lanterns of varying forms and sizes which brought in diffused light over high ceilings, as shown in Figure 2 below.

The Nasher Sculpture Gallery in Dallas had a similar arrangement for top lighting as the Menil Collection in Houston—a roof of aluminum shells oriented so as to bring in diffused light from the north into the art galleries. In the Cy Twombly Gallery on the same campus as the Menil, the roof was designed in four layers: diffused glass, steel louvers, a steel structural grid and a taut canvas fabric stretched across the ceiling; this arrangement made daylight diffuse uniformly across the galleries below. The Rothko Chapel had a single central skylight with a baffle below it to diffuse light into the center of the Chapel.

## DISCUSSION OF FINDINGS

The findings bring to the foreground opportunities and challenges tied to using daylight in museum environments.

### Perceptions of daylighting

Museum curators in all seven museums unanimously agreed that daylighting significantly improved the museum experience in two aspects: the perception and experience of art, and perception and experience of museum spaces (art galleries, circulation, and common gathering areas). This was evident in their responses, a sample of which are below:

Natural light gives depth to the paintings and makes them more dynamic. The paintings will change in appearance or color depending on how much light comes into the building



Figure 2: An art gallery in the Audrey Jones Beck Building, Museum of Fine Arts, Houston. Image source: Author

throughout the day. Daylight is absolutely integral to the proper functioning of this building. (The Rothko Chapel, Houston)

Daylight softens and enlivens the seemingly harsh materials of steel, glass, and concrete, which comprise the structure. (Modern Art Museum of Fort Worth)

...the 2nd floor galleries, where the European collection is housed, are outstanding for the daylight that filtered through roof-top lanterns. Both the general public and visiting museum professionals always comment on the wonderful natural light in the galleries which is very sympathetic to the works of art displayed there. (Audrey Jones Beck Building, Museum of Fine Arts, Houston)

...one does not get tired moving through all the galleries because of the daylighting design. There is no comparison in seeing a work of art under natural light than with artificial light. (The Menil Collection, Houston)

Daylighting gives one a sense of the outside as the light changes and moves during the day, the colors and shadows of the concrete vaults and walls changes...The light also makes the space feel bigger than it really is. (Kimbell Art Museum, Fort Worth)

Curators felt that the transparency created by glazed windows in many instances, also established connections to outside sculpture gardens, scenic landscapes, courtyards, or framed urban views. In the Modern Art Museum of Fort Worth, the windows created transitional spaces as described by a curator (see Figure 3):

The glass-sided pavilion galleries invite the natural world to more fully collaborate with the interior space – and those within it... it reminds the viewer of the natural environment...and makes one aware of the mutability of works of art when placed in environments that are subject to the vagaries of nature.

## **Challenges**

Daylighting also created challenges. In two of the seven museums, daylighting was tied to problems related to art conservation and presentation. In the Kimbell art galleries, some skylights had to be covered to protect sensitive artwork such as the Asian collection or art on paper. In the Rothko Chapel, daylight initially caused the paintings to change color. Later, a baffle was placed under the skylight in order to diffuse the light but it would cast shadows on the paintings at particular times of day. Visitors' reactions so far have been mixed according to the Chapel historian:

Visitors' opinions fall into one of three categories... 1) They "get it"; love the art, and feel the peacefulness; 2) they think it's a case of The Emperor's New Clothes ... Much ado about nothing; and 3) They HATE it, find it very depressing, and just want out.

The mixed reactions from visitors, as per observations during the site visit, may have been because the central skylight, while successful in illuminating the center of the chapel, left the surrounding area—which consisted of walls with Rothko's paintings (which are also in dark, somber tones)—considerably dark. Another Chapel historian, however, felt that the Chapel was not only a gallery for Rothko's art, but also a sacred space in which weddings, memorial services, and other religious services often took place. Rothko's vision was to create a quiet, contemplative space for meditation. The Rothko Chapel, in this sense, presents conflicting needs when it comes to daylighting. Its functions as a tribute to the artist and as a chapel may have taken precedence over considerations of all visitors' experience of the place. The Rothko Chapel study reveals that the challenges created by daylighting do not have universal solutions; every case comes with a unique set of concerns and requirements.

## **Desired improvements**

Museum employees said that they spend a lot of their time in offices, meeting rooms, and conservation labs in addition to art galleries and public areas. One improvement,

suggested by some of them, was providing daylighting to offices so that they and their co-workers could enjoy the same environmental benefits as the public. One curator also expressed the wish to incorporate it in the conservation labs so that paintings and objects could be viewed in the same light (daylight) that they were originally created. Interviewees did not express a desire for changes in the existing daylighting strategies in the museum or the overall lighting in art galleries.

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THIS PILOT STUDY WAS EXPLORATORY IN NATURE AND NOT SPECIFICALLY AIMED AT ANY ONE OF THESE AREAS, BUT RATHER, AT DISCOVERING THE RESEARCH POTENTIAL THAT COULD LEAD TO A BETTER UNDERSTANDING OF THE IMPLICATIONS OF DAYLIGHTING IN MUSEUM ENVIRONMENTS. THIS STUDY ALSO BROUGHT TO THE SURFACE THE POTENTIAL FOR A LARGER SCALE SURVEY OF MUSEUM VISITORS.

## **Visitor behavior**

Visitor counts in a few selected art galleries in each museum revealed that more people appeared to visit art galleries with daylighting than those without—i.e. lit with only electrical light. In order to come to any significant conclusions about visitor preferences, behavior and movement in relation to daylighting, however, systematic visitor counts for a larger number of art galleries and a statistical analysis of these counts is necessary. Visitors were also observed to gravitate towards gathering and resting spaces such as cafes, lobbies, and courtyards in all museums. These types of spaces were observed to be well-frequented throughout the day. It is hard to say whether daylight played a decisive role in this, but a

combination of factors such as the social nature of these spaces, their comfort, their natural light, and views to the outside may have made them attractive to museum visitors.

## **Quality of interior space**

Toplighting devices in most art galleries brought diffused light into the space. This light, even though diffused, perceptibly changed in color and intensity due to the weather, sky conditions, and trajectory of the sun, making the space dynamic and lively. In this sense, daylight appeared to play a significant role in setting the mood and ambience of the space. Its contribution to presenting art to the viewer, however, was only partial; in all instances paintings, objects, and sculptures were presented by carefully directed electrical lighting in addition to the ambient daylight. At the same time, art galleries without daylighting clearly lacked the ambient and mood-setting quality of those with it, and this appeared to influence the experience of viewing the art more than the amount of daylight that illuminated the artwork directly. This may be what museum curators meant when they said that works of art were optimally viewed under daylight; it appeared to have a profound influence on viewers' perceptions of art by influencing the sensory quality of their environments.

The interior finishes in several art galleries were carefully selected to work in tandem with the daylight entering the space. For example, in the Modern Art Museum of Fort Worth, architect Tadao Ando's signature exposed concrete appeared to shine with daylight which also played off the natural texture of the material. Some art galleries such as those in the Nasher Sculpture Center had fully glazed building facades that created a transparency which penetrated and opened up the entire site. This transparency sustained a constant visual connection between the building and its surroundings, both urban (downtown) and natural (the garden). Once again, with changes in the weather and light conditions outside, one felt a stronger sense of time and place inside.

*continued on p. 11*



*Figure 3: Inside a gallery in the Modern Art Museum of Fort Worth. Image Source: Author*

## CLOSING COMMENTS

Museum staff responses revealed two principal areas of concern when it came to daylighting: 1) the viewership of art, and 2) the spatial experience. This pilot study was exploratory in nature and not specifically aimed at any one of these areas, but rather, at discovering the research potential that could lead to a better understanding of the implications of daylighting in museum environments. This study also brought to the surface the potential for a larger scale survey of museum visitors. Even though many of the employee responses consisted of feedback they had received from visitors over the years, surveys that gathered information from visitors directly, would be more reliable, conclusive, and free of any bias that employee responses may have had.

Daylighting mechanisms in museums, if designed carefully, have the potential to create optimal art environments. A better understanding of the behavioral implications of daylighting revealed by post-occupancy studies can guide the design of art museums for an improved occupant experience. We already see a shift in design thinking; the question is no longer whether or not daylight should be introduced in art museums, but how it can be harnessed effectively.

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# A Critical Shift - Service Learning Through Design Build

2015  
APR

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BY PAUL RUSSELL AND DANIEL HARDING



For service learning to establish and maintain integrity in the fields of design, a critical shift in the perception and understanding of the power and effectiveness of design is essential. At Clemson University, design studios have been the mechanism for service-learning interventions through the lens of interdisciplinary design+build projects. Our approach to service learning through design build reaches beyond the

simple premise of design build as an altruistic means to build something which addresses a community need or a means for acquiring a construction merit badge or honor. Rather, for a project to be selected it must be filtered through a series of criteria in order to become a project in the studio. Criteria include matching appropriately with existing course learning goals, objectives and outcomes; reciprocal learning with students and the community stakeholders; a critical and rigorous design process and review; and post-project implementation studio team reflection activity.

In the recent past at our institution, design build projects alone have been carried out with the very best of intentions. However, these projects have taken the shape of small-scale structures or pavilion type experiments for students to get 'hands on' experience with building tools and materials. The products of these experiments often fall short of not only craft and significant design resolution, but also of a critical design process and critical follow-up or reflection. They also become poorly implemented architectural ruins scattered about the design building, with little lasting value beyond the initial studio exercise.



Figure 1: Bark Park Studio

Similarly, in the past service-learning community design build interventions have also fallen short of reaching their full potential as reputable assets in the Clemson and neighboring communities. Projects have certainly fulfilled the curricular goals of the studio and research and engagement goals of the faculty, but severely failed to establish reciprocal engagement of the community in terms of developing an understanding

and appreciation for design as a formidable asset in community building. Additionally, such interventions have proven to lack a lasting structural integrity necessary to fulfill the promised goals and vision billed by the design studio and instructor. The lack of a critical design and implementation approach paired with limited follow up with the community partners created a hazardous and distrustful environment. Additionally, a residual skepticism is developed from community partners that led to a decay in trust between the academy and community. Thus, it is the academy's responsibility to make a critical shift in perception and understanding of the power and effectiveness of critical design and implementation as necessary and effective tools for community engagement and positive social and environmental change.

Graduate architecture studios have teamed with graduate and undergraduate landscape architecture studios in various interdisciplinary community design+build endeavors, including the Greenville Humane Society Bark Park, the Sassafras Mountain Overlook, South Carolina Botanical Garden Watershed Bridge Intervention, the Clemson Student Organic Field Station, as well as the

Clemson Experimental Forest Trail Head Pavilions (See figure 1).

## SHIFTING THE PERCEPTION

By establishing and maintaining a rigorous and critical design process and review mechanism we have been able to successfully raise the standard of design, the quality of work, and design intensity to a breadth which ranges not only the scale of 1:1 but also a series of scales which ultimately affect the community. This means that in the studio, the work is researched and investigated from the S, M, L, and XL scales. For example, the initial task at the Greenville Humane Society was to design and construct a simple shade structure for the facility. Rather than simply designing a structure that would meet the immediate need, the studio approached the task from a variety of scales. Understanding the relevance and context of the

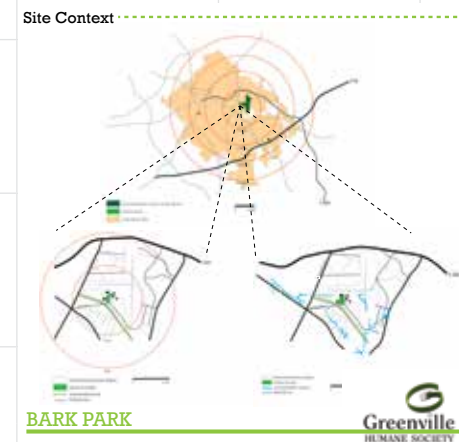


Figure 2: Regional Context

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Humane Society from a regional and community scale led to a design and programmatic framework that not only met the initial design criteria but also developed a value added programmatic asset that provided additional revenue for the facility (See figure 2).

In the words of Cary Perkins, Architect for McMillan Pazdan Smith Architects, who served as a guest critic and professional advisor for the design+build work at the Greenville Humane Society:

*The studio took a master-planning approach as a way of helping the client to understand the immediate project in a greater context. The collaborative process of design-build, and particularly the holistic approach taken to the project, was extremely impactful for the Humane Society.*

This broad scale approach enables community stakeholders, constituents, and partners to see beyond the object being built and understand the potential for a holistic design or intervention to function as a community catalyst for cultural change, community engagement and entrepreneurship. Kim Pitman, Executive Director of the Greenville Humane Society has said that the Bark Park Pavilions constructed by the interdisciplinary studio have contributed over \$14,000 dollars in revenue for the Greenville Humane Society through various events and



Figure 3: Yappy Hour

activities. In a testimonial letter, Pitman writes, "The pavilions are not only aesthetically pleasing and blend with the overarching campus, but, have enabled the GHS to launch a successful community event call Yappy Hour which has delivered a new revenue stream to our bottom line and attracted an important demographic to our growing business" (See figure 3).

In Service Learning in Design and Planning, Agnotti, Doble, and Horrigan write, "Service learning shifts the site of learning from the classroom or studio to the community but involves much more than a change in venue" (2011, p. 2). They argue that, "situating academic activities in the community requires the development of committed academic-community partnerships, open communication, shared goals, reciprocity, and continuing reflection. Service learning can integrate a community's needs to address a problem with the academic need to provide critical learning experiences. However, it must also create a new relationship between academic and community partners in which the contributions of both partners are understood and valued" (2011, p. 3).

This means that through our service-learning approach we actively seek an open dialogue with community partners who not only have a need but who also embody the notions of creativity and collaboration as effective tools for addressing and solving community issues. We see service learning as a fluid learning activity which enables students not only to embark on a critical design exercise, but also positions them to become creative and critical designers, effective communicators, and community advocates. Our approach to the studio imbues the spirit and ideals of scholarship-of engagement: discovery, integration, teaching, and application. Through creative risk-taking the



Figure 4: Stakeholder Review

studio approach is *unscripted* (the outcomes and deliverable are not predetermined) allowing the studio to confidently explore the edge between success and failure- as all critical design must (See figure 4).

The nature of our interdisciplinary collaborations has teamed students from architecture with students from landscape architecture. Depending on the scale and

extent of a project, interdisciplinary teams may work on individual team design build projects or individual teams may break down a larger project into focus areas within a greater context. A primary studio and pedagogical goal within the interdisciplinary studio is to instill the value of *trust* as the foundation between not only peers from other disciplines but also with community and academic partners. Simple elements of trust include effective communication, follow-through on promises or agreements, and general dependability. Trust as it applies to design build endeavors means being on budget, on time, and exceeding expectations. Developing trust with the community and stakeholders is a process that requires time: time to listen, evaluate, and discern between wants and needs. When trust is present, mutual, and open together communities and academic entities are capable of leveraging action and consensus.

## EVALUATING A PROJECT

In the same vein, the work produced in the studio must not only meet the necessary objectives of the various constituents or partners, but also, must meet or exceed pedagogical learning objectives, advance theories on design, form and function as well as address critical ideas on innovation. Agnotti, Doble and Horrigan emphasize that, "We need to establish better mechanisms to

*continued on p. 10*



Figure 5: Fieldwork



Figure 6: Implementation

systematically evaluate projects and learning experiences so that we are not always condemned to reinventing the proverbial wheel” (2011, p.3).

To ensure a critical design approach and outcome, students are asked to evaluate all aspects of the project through four simple lenses. By applying the concepts within the Vitruvian Triad (1914) of *Firmness*, *Commodity*, and *Delight* to design build and service learning projects, students can begin to evaluate their own work in a realistic, critical, and meaningful way. Each aspect of the Vitruvian Principles enables students to reflect on the work from various points of view. *Firmness* for example, relates to the durability of a landscape or structure, its various materials, fabrication and construction methods as well as issues with performance. *Commodity* asks the question, is what we are making useful? Does it appropriately meet a need or solve a problem? Or, are we creating and building a space, structure, or environment that people want to engage and use? From a community engagement stand point, the design build intervention must not come from a narcissistic design point of view, but rather must be understood by the client, appreciated for its form, and integrated within the existing fabric or context. *Delight* in some cases may come from the appearance or aesthetic of the intervention. *Delight* has a direct relationship with *Firmness* in terms of its beauty and effective detailing or execution and may come from the simple interaction of a constituent with the intervention, construction or space.

The fourth lens students are asked to consider within the critical review is *Innovation*. The question here becomes, are we building on the existing knowledge and previous work to improve a condition or place? Or are we simply repeating or replicating an existing character, structure, or place? The *Innovation* lens prevents students from simply reinventing the proverbial wheel and instead empowers them to push design to the point of failure. At the point of failure is where incredible teaching and learning moments are the most effective. At this same point is where innovation and creativity are the most concentrated and

new ideas and discoveries are most potent (Figure 5\_ Fieldwork).

In conclusion, designers in academic settings must make conscious and concerted efforts to increase the critical nature and approach to community design build interventions. To strengthen our credibility with community partners as well as peers in professional practice, we must institute effective strategies for evaluating community design build interventions as they are introduced into the public domain. As design educators, specifically as it applies to service learning and design build, we must approach projects as more than public service activities and consider them critical research experiments which advance innovation and design thinking while exceeding community goals and aspirations (See figure 6).

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Dear EDRA Members,

It has been over a month since EDRA's management was transitioned from Coulter to AMPED - Association Management Partners & Executive Directors. The new management team has gone through the full cycle of monthly committee calls, half a dozen EDRA46LosAngeles conference planning meetings, Fall Symposium and EDRA47Raleigh planning meetings, a Board meeting and the first membership renewal process. While we still have many things to learn, the operational wheel is moving. And it's moving forward briskly.

I'm writing this while days away from the EDRA46LosAngeles Annual Meeting. I'm so excited to meet many members and the attendees of the conference. I am told the spirit at the conference is convivial, the energy is positive and the interactions are warm and familial. I cannot wait.

EDRA was managed by Coulter for five years. During that time, the association grew the breadth of its program offerings, strengthened its governance structure, enhanced member benefits and communications. It continued to carry its mission with the same fervor and more engagement from volunteer-leaders. Forty six years into EDRA, we continue to pioneer environment and behavior (E-B) studies, evidence-based design, facility evaluation methods, sustainability, active living community planning, universal design, diversity

in design, workplace design and informatics and digital technologies.

Thanks to the passionate leadership of the EDRA Board through these last five years and the management of Coulter led by Kate O'Donnell, we are where we are today.

Since taking the helm of management, I have been very impressed by the level of commitment of the EDRA Board and volunteers. The energy and warm camaraderie are palpable.

I am very proud of the following EDRA programs and meetings:

### EDRA ANNUAL MEETINGS.

Now on its 46th year, the EDRA Annual Meeting continues to serve as the premier, must-attend meeting for E-B practitioners, researchers and students. Next year's annual meeting will take place in Raleigh, North Carolina, less than 30 miles from the birthplace of EDRA's first Annual Meeting. In 1969, EDRA held EDRA1 in Chapel Hill.

**FALL SYMPOSIUM** Held biennially, this regional

symposia provides an opportunity for the translation of design research into practice. Now in its second year, EDRA Fall Symposium 2015 will be hosted by BBH Design in collaboration with the NC State College of Design on Oct. 10.

**EDRA CORE.** Launched last year, the Certificate of Research Excellence recognizes rigorous, valuable, and impactful practice-based research to spark innovation and promote best practice in environmental design. Applicants



*Crash course: It was a pleasure to meet with Kate O'Donnell, former EDRA executive director, during the transition from Coulter to AMPED.*

meeting the criteria will be announced at Fall Symposium 2015.

**GREAT PLACE AWARDS.** EDRA's Great Places Awards seek to recognize work that combines expertise in design, research and practice and contributes to the creation of dynamic, humane places that engage our attention and imagination. The 17th year winners of Place Design, Place Planning, Place Research and Book Awards will be announced in EDRA46LosAngeles.

**GRADUATE STUDENT WORKSHOPS.** Now in its fifth year, the Graduate Student Workshop was designed to provide a forum for graduate students to present and discuss their ongoing research with senior mentors in environment-behavior design research. The workshop hopes to strengthen and further thesis/dissertation work, as well as to support the development of networks for young researchers in this area, both with senior researchers and with other graduate students. We thank past and current EDRA Student Representative to the Board for shepherding the process the last five years.

**STUDENT RESEARCH GRANT.** Designed to foster and support the next generation of environmental design educators, researchers, designers, scholars and practitioners, EDRA is proud to announce the call for proposals for the second annual Student Research Grant. The award provides \$2,000 USD educational grant and one complimentary registration to an EDRA annual meeting, and student membership for one year. Applications are due on August 24, 2015.

**EDRA AWARDS.** We recognize outstanding work and accomplishments through the EDRA Awards given each year during the Awards Banquet of the EDRA Annual Meeting. The following honors are bestowed: Best Paper, Student Best Paper, Student Design Award, Career, Service and Achievement Awards.

**EDRA COMMUNICATIONS.** We engage and connect with our members, supporters and E-B practitioners and researchers through various communication and social media channels. We publish an electronic newsletter bi-

monthly Environment by Design (EBD). EBD reaches over 3,000 readers. We have over 2,000 Facebook Likes, 1,400+ Twitter followers and over 200 LinkedIn followers. We also publish this quarterly newsletter EDRA Connections. Thanks to the leadership of our editor, Tasoulla Hadjiyanni, for leading the charge on EDRA Connections and Marwa Abdelmonem, Student Representative to the Board for all the social media outreach. Next year, one of the Communication Committee's top priorities will be the revamp of our website.

#### WHAT'S NEXT

Every year, EDRA leadership holds a retreat to reflect on the past years' accomplishments, learnings and future activities. In September, we will be holding a strategic planning session to determine how we can do a better job of serving our members and realize our vision, focus our energies, ensure that we are working toward the same goals and to assess and adjust our organization's direction in response to a changing environment. I'm looking forward to the retreat to exchange ideas and set the stage for the next five to ten years of EDRA.

If you're planning to attend the Annual Meeting in LA, seek me and our team members out. We'd love to get to know you. Brittany Olson is helping manage the conference planning and organization. Emily Viles is the members' first point of contact and assists with programs. Jeanne Rosen is our communications director who helps with graphic design and PR writing. Lynda J. Patterson, FASAE, CAE, president and owner of AMPED will act as consulting partner to EDRA and join us in L.A., as well.

See you and talk to you soon!  
At your service,

*Marechiel Santos-Lang*

